PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 14 May 2001 (14.05.01)	
International application No. PCT/AU00/01143	**Applicant's or agent's file reference** 466267C
International filing date (day/month/year) 20 September 2000 (20.09.00)	**Priority date** (day/month/year) 20 September 1999 (20.09.99)
Applicant HOGG, Philip, John et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

18 April 2001 (18.04.01)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer G. Bähr
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

Form PCT/IB/331 (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01143

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: C07F 9/20; 9/78; 9/74

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
SEE BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
SEE BELOW

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
STN (Reg; CA): structure, claim 10; arsenoxide; glutathione. STN (WPIDS): C07F/IC and arsen? and amino. STN (Medline): arsenic

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,Y	Proc.Natl.Acad.Sci, 86, pp 2607-2611 (1989). Fairlamb et al "Trypanothione is the primary target for arsenical drugs against African trypanosomes" Fig 2; pp 2607-2608	1-10; 35, 38,40
X	Ann. Rev. Microbiol, 46, pp 695-729 (1992) Fairlamb, A "Metabolism and functions of trypanothione in the kinetoplastida" pp 707-708	1-10; 35, 38, 40
X,Y	Eur J Biochem, 221, pp 285-295 (1994) Cunningham et al "Mechanism of inhibition of trypanothione reductase and glutathione reductase by trivalent organic arsenicals" Table 1; p 288	1-10, 35, 38, 40

[X] Further documents are listed in the continuation of Box C [ ] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
6 November 2000	14 NOV 2000
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer MADHU K. JOGIA Telephone No: (02) 6283 2512

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01143

C (Continuation). **DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,Y	Mol Biochem Parasitol, 9, pp 29-35 (1983) Bhargava et al "Effect of arsenical drugs on glutathione metabolism of *Litomosoides carinii*" pp 29, 31, 34	1-10, 35, 38, 40
X	Nature, 361(6408), pp 173-6 (1993) Carter et al "Arsenical-resistant trypanosomes lack an unusual adenosine transporter"	1-10, 35, 38, 40
X	US 3883650 (Friedheim et al) 13.05.75 Column 3; formula 1	1-10, 35, 38, 40
Y	Biochimica et Biophysica acta, 628, pp 241-243 (1980) Pisciotto et al	1-10, 35, 38, 40
X	Chemical Abstracts Registry No 1122-90-3. p-amino phenyl arsenoxide	1-10
X	Chemical Abstracts Registry No. 637-03-6. Arsenosobenzene	1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01143

Box I **Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :

because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos : **1-9; 11-14 (in part); 35 (in part); 38 (in part); 40 (in part)**

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

Claim 1 defines groups in broad terms (eg, linker groups; cell membrane impermeable pendant group) which do not have a clear meaning and thus no meaningful search can be carried out. Similarly, its appendages and the claims identified as above insofar as the claims and the appendages include these terms have not been searched.

3. ☐ Claims Nos :

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II **Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).	
466267C:ANB:LJG			
International Application No.	International Filing Date *(day/month/year)*		Priority Date *(day/month/year)*
PCT/AU00/01143	20 September 2000		20 September 1999

International Patent Classification (IPC) or national classification and IPC

Int. Cl. [7] C07F 9/20; 9/78; 9/74

Applicant

UNISEARCH LIMITED et al

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

I	☒	Basis of the report
II	☐	Priority
III	☒	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☐	Lack of unity of invention
V	☒	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	☐	Certain documents cited
VII	☐	Certain defects in the international application
VIII	☒	Certain observations on the international application

Date of submission of the demand	Date of completion of the report
18 April 2001	19 October 2001
Name and mailing address of the IPEA/AU	Authorized Officer
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	MADHU K. JOGIA Telephone No. (02) 6283 2512

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/AU00/01143

I. Basis of the report

1. With regard to the **elements** of the international application:*

[X] the international application as originally filed.

[ ] the description, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of

[ ] the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages , received on with the letter of

[ ] the drawings, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of

[ ] the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:

[ ] the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

[ ] the language of publication of the international application (under Rule 48.3(b)).

[ ] the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

[ ] contained in the international application in written form.

[ ] filed together with the international application in computer readable form.

[ ] furnished subsequently to this Authority in written form.

[ ] furnished subsequently to this Authority in computer readable form.

[ ] The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

[ ] The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. [ ] The amendments have resulted in the cancellation of:

[ ] the description, pages

[ ] the claims, Nos.

[ ] the drawings, sheets/fig.

5. [ ] This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report*

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be nonobvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos: **1-9; 11-14 (in part); 38 (in part) and 40 (in part)**

Because they relate to parts of the International application that do not comply with the prescribed requirements to such an extent that no meaningful search can be carried out. Claim 1 defines groups in broad terms (eg, linker groups; cell membrane impermeable pendant group) which do not have a clear meaning and thus no meaningful search can be carried out. Similarly, its appendages and the claims identified as above insofar as the claims and the appendages include these terms have not been searched

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination *(specify)*:

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claim Nos. **1-9; 11-14 (in part) 38 (in part); 40 (in part) insofar as the claims define broad terms as discussed above. However, a cursory look through the literature has identified citations to some of these broad claims as reported in the IPEO in Box V.**

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims **10, 15-34, 36-37 and 39**	YES
	Claims **1-9, 35, 38 and 40-42**	NO
Inventive step (IS)	Claims **15-34, 36-37 and 39**	YES
	Claims **1-10, 35, 38 and 40-42**	NO
Industrial applicability (IA)	Claims **1-42**	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

The following documents identified in the International Search Report have been considered for the purposes of this report:

D1 Proc Natl Acad Sci (1989)
D2 Ann Rev Microbiol (1992)
D3 Eur J Biochem (1994)
D4 Mol Biochem Parasitol (1983)
D5 Nature (1993)
D6 US 3883650
D7 Biochimica et Biophysica Acta (1980)
D8 Chemical Abstracts No 112-90-3
D9 Chemical Abstracts No 637-03-6

Novelty (N) and Inventive Step (IS) Claims 1-10, 35, 38 and 40-42

The broad claims include compounds clearly disclosed and taught in the art. The simple compounds of formula (1) include compounds disclosed in citations D1-D7, eg, arsenoxide derivatives. As noted in Box III of this opinion, claim 1 defines broad terms and no meaningful search can be carried out. However, a cursory look through the literature has identified citations as listed above which clearly disclose and teach the invention as defined in claim 1 and its appendages insofar as these terms form part of the definition of the groups in claim 1.

The applicant submits that claim 1 recites compounds falling within the scope are "substantially cell-membrane impermeable". However, it appears that the broad definition of the terms of claim 1 includes arenoxide compounds and derivatives (eg D6; column 6). It appears that the property regarding "cell-membrane impermeability" is inherent to this broad class of compounds.

..continued in Supplemental Box

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 1-9, 11-14, 35 and 40 are not fully supported by the description because of the following broad terms;

linker group; spacer group; cell membrane impermeable pendant group.

It would require an undue burden of experimentation on the part of the skilled addressee to determine which groups fall within the scope of the said terms.

Further, it is contended that the scope of the claims is speculative.

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V

In regard to the definition of "arsenoxide equivalent", the applicant refers to pages 12-13 of the specification, while there is some indication of the groups which fall within the scope of the term, the definition is not exclusive at pages 12-13. There is reference to typical compounds. In any event, an arsenoxide equivalent is defined as any dithiol reactive species that shows essentially the same affinity towards thiols as -AS=O. It is not clear from your submission as to why the compounds of the prior art as listed above do not fall within the scope of claim 1.

While the specific glutathione derivatives of claim 10 are not disclosed in the art, D9 discloses arsenoxide compounds. These compounds may be further substituted following the teaching in D3.

Moreover the pharmaceutical uses of these compounds is well documented in the art (D1-D7).

.he compounds as defined in claim 18-34 appear to be novel and inventive.

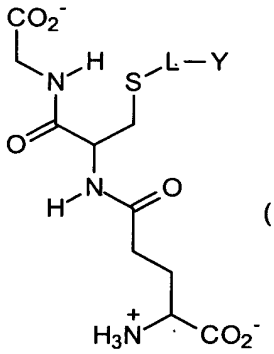
Industrial applicability (IA) Claims 1-42

The invention appears to possess industrial applicability.

6. (Amended) The compound according to claim 1, wherein A is selected from the group consisting of natural, unnatural and synthetic amino acids, hydrophilic amines, peptides, polypeptides, oligosaccharides, detectable groups, and thiol containing proteins, or a combination thereof.

9. (Amended) The compound according to claim 1, wherein A is selected from the group consisting of glutathione, glucosamine, cysteinylglycine, cysteic acid, aspartic acid, glutamic acid, lysine, and arginine, and wherein the sulfur atom of each sulfur containing compound may be optionally oxidised to form a sulfoxide or sulfone.

10. (Amended) The compound according to claim 1, wherein A is glutathione, and wherein the compound is represented by Formula II:



(II)

wherein L comprises any suitable linker and/or spacer group, and Y comprises an arsenoxide or an arsenoxide equivalent.

11. (Amended) The compound according to claim 1, wherein p is an integer from 1 to 5.

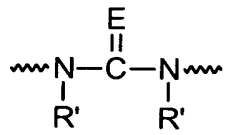
13. (Amended) The compound according to claim 1, wherein L corresponds to $(XBX')_nB'$, and wherein:

n is an integer from 0 to 20,

X is selected from the group consisting of: NR-, S(O)-, -S(O)O-, $-S(O)_2$-, $-S(O)_2O$-, -C(O)-, -C(S)-, -C(O)O-, C(S)O-, -C(S)S-, $-P(O)(R_1)$-, $-P(O)(R_1)O$-, or is absent;

B is selected from C_1-C_{10} alkylene, C_2-C_{10} alkenylene, C_2-C_{10} alkynylene, C_3-C_{10} cycloalkylene, C_5-C_{10} cycloalkenylene, C_3-C_{10} heterocycloalkylene, C_5-C_{10} heterocycloalkenylene, C_6-C_{12} arylene, heteroarylene or C_2-C_{10} acyl;

X' is selected from NR-, –O-, -S-, -Se-, -S-S-, S(O)-, -OS(O)-, OS(O)O-, -$OS(O)_2$-, -$OS(O)_2O$-, -S(O)O-, -$S(O)_2$-, -$S(O)_2O$-, -OP(O)(R_1)-, -OP(O)(R_1)O-, -OP(O)(R_1)OP(O)(R_1)O-, -C(O)-, -C(S)-, -C(O)O-, C(S)O-, -C(S)S-, -P(O)(R_1)-, -P(O)(R_1)O-,



or is absent; wherein E is O, S, Se, NR or $N(R)_2^+$;

and

B' is C_1-C_{10} alkylene, C_2-C_{10} alkenylene, C_2-C_{10} alkynylene, C_3-C_{10} cycloalkylene, C_5-C_{10} cycloalkenylene, C_3-C_{10} heterocycloalkylene, C_5-C_{10} heterocycloalkenylene, C_6-C_{12} arylene, heteroarylene or is absent; and wherein

each R is independently selected from hydrogen, C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_3-C_{10} heterocycloalkyl, C_5-C_{10} heterocycloalkenyl, C_6-C_{12} aryl, heteroaryl, OR_2 or C_2-C_{10} acyl;

R' is the same as R or two R' may be taken together with the nitrogen atoms to which they are attached to form a 5 or 6-membered saturated or unsaturated heterocyclic ring;

each R_1 is independently selected from hydrogen, C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_3-C_{10} heterocycloalkyl, C_5-C_{10} heterocycloalkenyl, C_6-C_{12} aryl, heteroaryl, halo, OR_2 or NO_2;

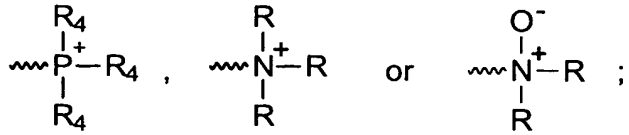
each R_2 is independently selected from hydrogen, C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_3-C_{10} heterocycloalkyl, C_5-C_{10} heterocycloalkenyl, C_6-C_{12} aryl, heteroaryl or –C(O)R_5;

each R_5 is independently selected from hydrogen, C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_3-C_{10} heterocycloalkyl, C_5-C_{10} heterocycloalkenyl, C_6-C_{12} aryl, heteroaryl, C_1-C_{10} alkoxy, C_3-C_{10} alkenyloxy, C_3-C_{10} alkynyloxy, C_3-C_{10} cycloalkyloxy, C_5-C_{10} cycloalkenyloxy, C_3-C_{10} heterocycloalkyloxy, C_5-C_{10} heterocycloalkenyloxy, C_6-C_{12} aryloxy, heteroaryloxy, C_1-C_{10} alkylthio, C_3-C_{10} alkenylthio, C_3-C_{10} alkynylthio, C_3-C_{10} cycloalkylthio, C_5-C_{10} cycloalkenylthio, C_3-C_{10} heterocycloalkylthio, C_5-C_{10} heterocycloalkenylthio, C_6-C_{12} arylthio, heteroarylthio, OH, SH or NO_2;

wherein for each instance that B and/or B' is arylene, the substituents directly attached to the respective arylene rings (including arsenoxide or arsenoxide equivalent), may be in a para, meta or ortho relationship, and

wherein each alkylene, alkenylene, alkynylene, cycloalkylene, cycloalkenylene, heterocycloalkylene, heterocycloalkenylene, arylene, heteroarylene and acyl may be independently substituted with hydrogen, C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_3-C_{10} heterocycloalkyl, C_5-C_{10} heterocycloalkenyl, C_6-C_{12} aryl,

heteroaryl, halo, cyano, cyanate, isocyanate, OR_{2a}, SR_6, nitro, arsenoxide, $-S(O)R_3$, $-OS(O)R_3$, $-S(O)_2R_3$, $-OS(O)_2R_3$, $-P(O)R_4R_4$, $-OP(O)R_4R_4$, $-N(R")_2$, $-NRC(O)(CH_2)_mQ$, $-C(O)R_5$,



wherein R, R_1 and R_5 are as defined above; and

R_{2a} is selected from hydrogen, C_1-C_5 alkyl, C_2-C_5 alkenyl, C_2-C_5 alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_6-C_{12} aryl, $-S(O)R_3$, $-S(O)_2R_3$, $-P(O)(R_4)_2$, N®2 or $-C(O)R_5$;

each R_3 is independently selected from hydrogen, C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_3-C_{10} heterocycloalkyl, C_5-C_{10} heterocycloalkenyl, C_6-C_{12} aryl, heteroaryl, C_1-C_{10} alkoxy, C_3-C_{10} alkenyloxy, C_3-C_{10} alkynyloxy, C_3-C_{10} cycloalkyloxy, C_5-C_{10} cycloalkenyloxy, C_3-C_{10} heterocycloalkyloxy, C_5-C_{10} heterocycloalkenyloxy, C_6-C_{12} aryloxy, heteroaryloxy, C_1-C_{10} alkylthio, C_3-C_{10} alkenylthio, C_3-C_{10} alkynylthio, C_3-C_{10} cycloalkylthio, C_5-C_{10} cycloalkenylthio, C_3-C_{10} heterocycloalkylthio, C_5-C_{10} heterocycloalkenylthio, C_6-C_{12} arylthio, heteroarylthio or NO_2;

each R_4 is independently selected from hydrogen, C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_3-C_{10} heterocycloalkyl, C_5-C_{10} heterocycloalkenyl, C_6-C_{12} aryl, heteroaryl, C_1-C_{10} alkoxy, C_3-C_{10} alkenyloxy, C_3-C_{10} alkynyloxy, C_3-C_{10} cycloalkyloxy, C_5-C_{10} cycloalkenyloxy, C_3-C_{10} heterocycloalkyloxy, C_5-C_{10} heterocycloalkenyloxy, C_6-C_{12} aryloxy, heteroaryloxy, C_1-C_{10} alkylthio, C_3-C_{10} alkenylthio, C_3-C_{10} alkynylthio, C_3-C_{10} cycloalkylthio, C_5-C_{10} cycloalkenylthio, C_3-C_{10} heterocycloalkylthio, C_5-C_{10} heterocycloalkenylthio, C_6-C_{12} arylthio, heteroarylthio, halo or NO_2;

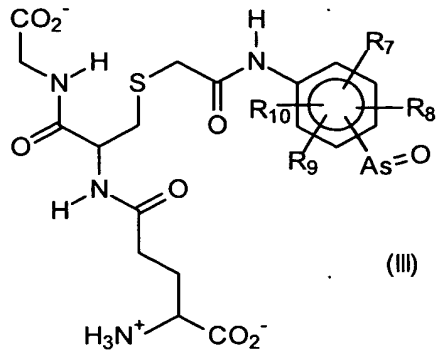
R_6 is selected from C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_3-C_{10} heterocycloalkyl, C_5-C_{10} heterocycloalkenyl, C_6-C_{12} aryl, heteroaryl, C_1-C_{10} alkylthio, C_3-C_{10} alkenylthio, C_3-C_{10} alkynylthio, C_3-C_{10} cycloalkylthio, C_5-C_{10} cycloalkenylthio, C_3-C_{10} heterocycloalkylthio, C_5-C_{10} heterocycloalkenylthio, C_6-C_{12} arylthio, heteroarylthio, $-S(O)R_3$, $-S(O)_2R_3$ or $-C(O)R_5$.

R" is the same as R or two R" taken together with the N atom to which they are attached may form a saturated, unsaturated or aromatic heterocyclic ring system;

Q is selected from halogen and $-OS(O)_2Q_1$; wherein Q_1 is selected from C_1-C_4 alkyl, C_1-C_4 perfluoroalkyl, phenyl, *p*-methylphenyl; and

m is 1 to 5.

18. (Amended) The compound according to claim 1represented by Formula III:



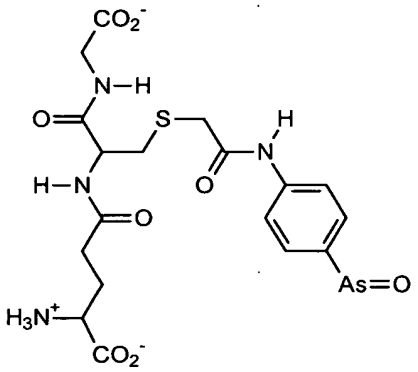
(III)

, and wherein

R_7 to R_{10} are independently selected from the group consisting of: hydrogen, C_1-C_5 alkyl, C_6-C_{12} aryl, halogen, hydroxy, amino, nitro, carboxy, C_1-C_5 alkoxy, $-OS(O)_2R_3$ or $-NHC(O)CH_2Q$ wherein Q is halogen, $-OS(O)_2CH_3$, $-OS(O)_2C_6H_5$ or $-OS(O)_2$-*p* tolyl.

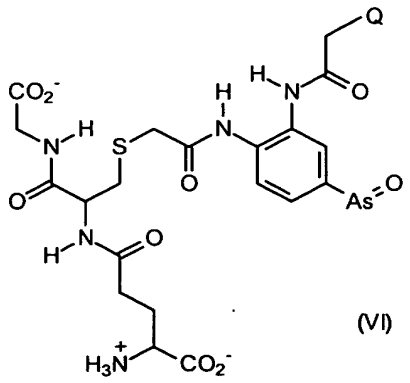
20. (Amended) The compound according to claim 18, wherein the arsenoxide (-As=O) group is at the 4-position of the phenylene ring.

21. (Amended) The compound according to claim 1, wherein the compound is 4-(*N*-(*S*-glutathionylacetyl)amino)phenylarsenoxide (GSAO) and is represented by Formula V:



(V)

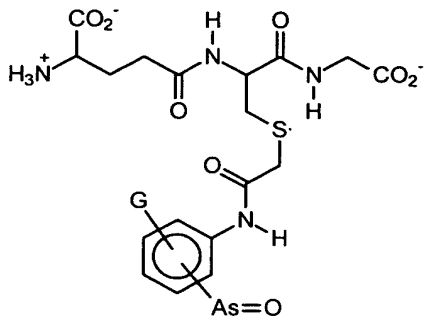
22. (Amended) The compound according to claim 1, wherein the compound is represented by Formula VI:



(VI)

wherein Q is any halogen.

23. (Amended) The compound according to claim 1, wherein the compound is represented by Formula VII:



(VII)

wherein G is selected from the group consisting of: hydrogen, halogen, hydroxy, amino, nitro, carboxy, C_1-C_5 alkoxy, C_1-C_5 alkyl and C_6-C_{12} aryl and -NHC(O)CH_2Q wherein Q is halogen, -OS(O)$_2CH_3$, -OS(O)$_2C_6H_5$ or –OS(O)$_2$-*p* tolyl.

25. (Amended) The compound according to claim 23, wherein G is selected from the group consisting of hydroxy, fluorine, amino, and nitro.

26. (Amended) The compound according to claim 23, wherein the activity of the arsenic atom may be modified by the group G, when G and the arsenic atom are in an ortho- or para- relationship to one another.

27. (Amended) The compound according to claim 1, wherein the arsenoxide group (-As=O) is replaced by an arsenoxide equivalent.

30. (Amended) The compound according to claim 1, which is linked to a detector group.

32. (Amended) The compound according to claim 30, wherein the detector group is biotin.

35. (Amended) A process for preparing the compound according to claim 1, wherein said process comprises reacting at least one of said substantially cell-membrane impermeable groups (A) with said spacer group L to which is attached at least one arsenoxide or arsenoxide equivalent (Y).

37. (Amended) A compound prepared in accordance with the process of claim 35.

38. (Amended) A pharmaceutical composition comprising a compound of claim 1, together with a pharmaceutically acceptable carrier, adjuvant and/or diluent.

39. (Amended) A process for preparing the pharmaceutical compositioncomprising a compound of claim, wherein said process comprises mixing the compound according to claim 1 with a pharmaceutically acceptable carrier, adjuvant and/or diluent.

40. (Amended) A method of treatment and/or prophylaxis of disease in a vertebrate in need of said treatment and/or prophylaxis, wherein said method comprises administering to the vertebrate a therapeutically effective amount of the compound according to claim 1.

42. (Amended) The method of claim 40 wherein the disease is selected from the group consisting of angiogenesis-dependent diseases, inflammatory disorders and/or auto-immune diseases, vascular disease and thrombosis, viral infection, and cancer.

43. (New) A method of treatment and/or prophylaxis of disease in a vertebrate in need of said treatment and/or prophylaxis, wherein said method comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 38.

44. (New) The compound according to claim 24, wherein G is selected from the group consisting of hydroxy, fluorine, amino, and nitro.